

Audit Quality, Monitoring Mechanisms and Auditor Reporting Behaviour

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Abstract

This study extends previous research by empirically investigating the relationship of audit quality and governance monitoring mechanisms with the probability of receiving a qualified audit report. Using Australian manufacturing company data we find that Big 4 auditors are more likely to issue a clean audit report. We also note that auditors are less likely to qualify a certain firm's financial statements when higher levels of non-audit fees are derived. Finally, this study adds to the growing body of literature that documents the importance of boards' role in monitoring management behavior; that is, we find that smaller size boards appear to be less effective than larger size boards. The above findings have implications about the perception of auditor independence and effectiveness of board of directors.

Key Words: Audit, monitoring mechanisms, reporting behaviour

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1. Introduction

This study extends previous research by empirically investigating how audit quality and governance monitoring mechanisms affect the probability of receiving a qualified audit report for 124 manufacturing firms listed on the Australian Stock Exchange (ASX). We measure audit quality using three alternative proxies: (1) Big 4/non-Big 4 auditor dichotomy; (2) earnings management; and (3) auditor independent benchmarks. In addition, size of supervisory board, independence of board of directors and independence of the audit committee are variables employed for measuring the effectiveness of monitoring.

The occurrence of a qualified opinion remains a central concern of financial statement users (Sanchez-Ballesta and Garcia-Meca 2005), and a source of client dissatisfaction and client loss (Chow and Rice 1982). Specifically, previous research documents that going-concern audit opinion qualifications have a strong association with stock returns (Dopuch, Holthausen, and Leftwich 1986; Choi and Jeter 1992; Jones 1996) and difficulty in getting debt capital (Firth 1980). The going-concern audit opinion qualifications are also effective at signalling financial distress and bankruptcy events (Hopwood, McKeown, and Mutchler 1989; Kennedy and Shaw 1991; Mutchler, Hopwood, and McKeown 1997). Consequently, corporate management may pressure auditors to forego issuing a qualified audit report (Mutchler 1984; Carcello and Neal 2000).

Watts and Zimmerman (1986) and DeAngelo (1981) argue that auditor quality depends on the relevance of the auditor's report in examining contractual relationships and reporting on breaches. Bartov, Gul and Tsui (2000) suggest that higher quality auditors prefer to report errors and irregularities, and are unwilling to accept questionable accounting practices. A high quality auditor must be able to both objectively evaluate a firm's financial performance and withstand management pressure to issue either an unqualified or a clean audit opinion (DeFond, Raghunandan, and Subramanyam 2002). It is widely accepted that the quality of the audit differs among audit firms (DeAngelo 1981; Francis, Maydew, and Sparks 1999). For example, Big 4 audit firms may provide higher quality than non-Big 4 audit firms (DeAngelo 1981; Watts and Zimmerman 1986; Becker, DeFond, Jiambalvo, and Subramanyam 1998; Caneghem 2004). The

Big 4 auditors have strong incentives to provide or maintain a high audit quality level as these audit firms have: (1) a greater number of clients; (2) more opportunity to deploy significant resources to auditing (recruitment, training and technology); and (3) can suffer more significant losses (for example, termination of other clients and related loss of reputation) when not reporting a discovered breach (Caneghem 2004; Chung, Firth, and Kim 2005).

Earnings management reduces the reliability of earnings because the figure reported may be biased, and may potentially misrepresent the true reporting earnings figure. Arthur Levitts, Jr. (1998), the former chairman of the SEC, states that the practice of earnings management has negative effects on the reliability and credibility of financial reporting. Jackson and Pitman (2001) report that the practice of earnings management erodes investor confidence in financial reporting quality and impedes the efficient flow of capital in financial markets. Following Carey and Simnett (2006), we employ earnings management as another proxy for audit quality.

Independence permits auditors to remain objective in drawing conclusions about the financial statements that they examine. Independence means ‘taking an unbiased viewpoint in the performance of audit tests, the evaluation of the results and the issuance of the audit report’ (Arens, Loebbecke, Best, and Shailer 2002, p. 28). Thus, the quality of audit depends on auditor independence which is the extent an auditor prefers to report errors and irregularities and is willing to disclose questionable accounting practices (Bartov *et al.* 2000).

The question of audit quality is important within the Australian business context given developments since the turn of the millennium. On 18 September 2002, the Australian Federal Government released reform proposals¹ in the *Corporate Law Economic Reform Program (CLERP 9) Discussion Paper* in order to strengthen arrangements for the oversight of the accounting and auditing profession (ASIC 2002). The proposal promised to reshape the corporate governance framework in Australia. On 31 March 2003, the *Principles of Good Corporate Governance and Best Practice Recommendations (ASX 2003)* was also adopted as the pivotal component of the framework for reforming the corporate governance system. Among

¹ This bill was passed by Parliament on 25 June 2004, and received Royal Assent on 30 June 2004 under the name of the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (CLERP 9 Act).

other things, *CLERP 9* emphasises the roles of the board of directors, management and auditors (Gay and Simnett 2003).

One important change implemented in *CLERP 9* that affects the auditing profession has been the setting up of an audit committee as a sub-committee of the board of directors. An audit committee consists of independent and non-executive members of the governing body of the company. The audit committee represents shareholders in a key role to monitor the performance of management. It oversees the financial reporting and auditing process. For this reason, an audit committee plays important corporate governance roles (Gay and Simnett 2003) and may have a more direct role in controlling management's actions (Xie, Davidson III, and DaDalt 2003). Thus, the role of the board of directors and audit committee in supervising management is arguably viewed as the solution for problem arising from agent-principal relations. Previous literature documented that the presence of modified (qualified) opinion is associated with the effectiveness of monitoring mechanism variables such as the number of members on the boards and the proportion of members of the board of directors that are considered independent (Firth, Fung, and Rui 2007).

Our study offers research insights on three main fronts. First, this study provides further evidence of the relationship between both audit quality and governance monitoring mechanisms, and the propensity to obtain a qualified opinion using data from a different domestic setting (i.e., Australia). Previous literature on the audit quality and the governance monitoring mechanism – audit opinion linkages using Australian data has been limited. Second, we enrich the literature by analysing the joint relationship between both audit quality (i.e., Big 4, earnings management, and auditor independence) and monitoring mechanisms (i.e., size of boards, independent boards of directors, and independent audit committee) attributes and audit qualification. As Vafeas and Theodorou (1998) remark, the study of key related corporate governance characteristics in isolation may hide key inferences, leading to misleading findings. Third, this study focuses solely on the manufacturing sector. Using data from the manufacturing firms group is expected to ensure data homogeneity. Overall, this study provides an important contribution to the audit and corporate governance literature by providing evidentiary insights about audit quality,

monitoring mechanisms and auditor reporting behavior in a recently strengthened Australian regulatory environment.

The remainder of this paper is organised as follows. The next section establishes the theoretical framework underlying audit quality and monitoring mechanism – qualified opinion linkages. The hypotheses are also developed in this section. Section 3 describes the research design. Primary results including descriptive statistics, correlations and regression analysis are presented in Section 4. Results of the study and implications for future research are discussed in the concluding section.

2. Theoretical Framework and Hypothesis

This study uses two types of independent variables, audit quality and monitoring mechanisms, to predict the frequency of receiving qualified audit reports.²

2.1. Audit quality and audit opinion

We measure the quality of audit by Big 4 audit firms, earnings management, and auditor independence.

2.1.1 Big 4 auditor and qualified opinion

Findings reported in numerous studies clearly support the view that Big 4 auditors serve as a barometer of higher levels of audit quality. Several studies have supported this surrogate measure (e.g., Dopuch and Simunic 1982; Becker *et al.* 1998; Francis *et al.* 1999; Gore, Pope, and Singh 2001; Bauwhede, Willekens, and Gaeremynck 2003; Krishnan 2003; Chen, Lin, and Zhou 2005). For example, in earnings management studies, using U.S data, Becker *et al.* (1998) show that clients of Big 4 auditors report smaller discretionary accruals than those reported by clients of non-Big 4. Krishnan (2003) documents that Big 4 auditors are able to constrain aggressive and opportunistic reporting of discretionary accruals by their clients compared with non-Big 4 auditors. Francis *et al.* (1999) argue that even though clients of Big 4 firms report higher level of

² In addition to the independent variables of interest for which separate hypotheses are formed in the following subsections we control for the effects of other factors that are likely to influence the auditor's propensity to issue a qualified audit report: size of firm, leverage, and return on investment (Francis and Krishnan 1999; Carcello and Neal 2000; Firth *et al.* 2007).

total accruals, they have lower amounts of discretionary accruals. Based on a U.K. sample, Gore *et al.* (2001) suggest that where there are high levels of non-audit services, Big 4 firms are more able to constrain earnings management than their non-Big 4 counterparts. Kabir, Islam, Sharma and Salat (2008) note in a Bangladesh context that Big 4 clients have lower discretionary accruals than their non-Big 4 counterparts. In addition, Chen *et al.* (2005) find that Big 4 audit firms are associated with less earnings management for Taiwan IPO firms. However, using a sample of Belgian publicly listed firms, Bauwhede *et al.* (2003) report that the superior performance of Big 4 over non-Big 4 auditors is only in the case of income-increasing earnings management. In summary, the higher quality audits identified with Big 4 auditors may be a result of the greater technological capability of these audit firms in detection (Kim, Chung, and Firth 2003; Caneghem 2004) and incentive in reporting (DeAngelo 1981; Palmrose 1988; Bartov *et al.* 2000; Craswell, Stokes, and Laughton 2002) the earnings management activities.

Additionally, the reputation protection hypothesis argues that Big 4 auditors have more propensity to protect reputation capital because audit failures: (a) will significantly damage brand name (Hunt and Lulseged 2007); and (b) cause auditors to be sued which often results in substantial litigation costs (St. Pierre and Anderson 1984). If these arguments are valid, Big 4 auditors have more propensity to be aggressive in efforts to detect and limit management opportunistic behaviours; thus, companies audited by Big 4 are more likely to receive a qualified audit opinion than those audited by non-Big 4 auditors (Craswell *et al.* 2002).

Evidence on whether Big 4 audit firms are more likely to issue qualified audit reports compared with non Big 4 counterparts is mixed. Warren (1980) documents a statistically significant positive relationship between Big 4 auditors and the likelihood of qualification of the audit opinion. Whereas Shank and Murdock (1978) report an opposite directionality. Moreover, Caramanis and Sparthis (2006) note that non-Big 4 auditors are less likely to issue unqualified reports because of having limited expertise to detect errors and irregularities; thus, these audit firms implement a conservative strategy to compensate a lack of capabilities by issuing qualification audit opinions. Similarly, Hunt and Lulseged (2007) suggest clients of non-Big 4 audit firms are more likely to receive going-concern qualified opinions as these clients are smaller, have lower operating cash flows, less financial leverage and are more financially

distressed than clients of Big-4 audit firms. Finally, a study of a large sample of U.K. quoted firms from 1977 to 1986 conducted by Citron and Taffer (1992) report clients audited by smaller accounting firms have a greater likelihood of receiving a going-concern qualified audit opinion. Following Maijor and Vanstraelen (2006), we assume that Big 4 audit firms provide the same audit quality level across countries. Based on discussions above, our hypothesis is:

H₁: The size of audit firm (Big 4 versus non-Big 4) affects auditors' propensity to qualify their opinions.

2.1.2 Earnings management and qualified opinion

This study uses discretionary accruals to proxy earnings management. Accrual-based earnings are derived from accounting estimates and accounting method choices that might result in the overstatement of assets, which in turn, leads to greater possibility of asset realisation problems. Thus, Francis and Krishnan (1999) argue that accrual-based earnings increase inherent audit risk (the risk that financial statements contain material misstatements). The material misstatements are one of the underlying reasons for auditors to qualify opinions in audited financial statements (Chen, Chen, and Su 2001). Past studies (e.g., Francis and Krishnan 1999; Bartov *et al.* 2000; Chen *et al.* 2001) have documented that earnings management was an explanatory factor of auditor qualification opinions. Empirical findings from a large sample of U.S. listed firms conducted by Francis and Krishnan (1999) revealed that high-accruals firms tend to obtain qualified audit opinion more often than lower-accruals firms. Using data from the Chinese stock market, Chen *et al.* (2001) reported that earnings management is positively related with receiving modified audit opinion. Therefore, our second hypothesis is:

H₂: Companies with high discretionary accruals are more likely to receive an audit qualification opinion.

2.1.3 Auditor independence and qualified opinion

Independence is the cornerstone of the auditing profession (Gill, Cosserat, Leung, and Coram 1999). It has been expected that the large proportion of non-audit fees received by auditors from clients might reduce the objectivity of auditors in reporting audit results. Policy makers (e.g.,

Levitt 1998), popular press articles (e.g., MacDonald 2001; Liesman, Weil, and Schroder 2002) and academic researchers (e.g., Frankel, Johnson, and Nelson 2002) have argued that the provision of more non-audit services to a client increases the economic bond, leading to the impairment of an auditor's independence. Studies have reported that auditors' independence is more likely to be impaired due to the large provision of non-audit fees received from audit clients. For example, Frankel *et al.* (2002) find a positive association between non-audit fees and the magnitude of the absolute value of discretionary accruals. Their (Frankel *et al.* (2002) findings imply that the auditor's independence is compromised due to a large portion of non-audit fees received from audit clients. Gore *et al.* (2001) document similar results to Frankel *et al.* (2002) for non-Big firms.³ Using the same data sets and methodology as Frankel's *et al.* (2002), Ashbaugh, LaFond and Mayhew (2003) report that earnings management is positively and significantly associated with the purchase of non-audit services. However, after adjusting for firm performance, they (Ashbaugh *et al.* 2003) fail to find any evidence of a relationship between the provision of non-audit fees and the magnitude of earnings management.

Based on the economic dependence hypothesis, we expect that the larger the proportion of non-audit fees the higher the auditor's economic dependence and hence the lower the probability of auditors qualifying audit reports. This suggests that the auditor's level of independence is positively associated with the auditor's probability of issuing a qualified opinion. The preceding discussion gives rise to our third hypothesis as follows:

H₃: Companies that pay larger non-audit fees (proxy for impairment of auditor independence) are less likely to receive an audit qualification opinion.

2.2. Monitoring device and audit opinion

The role of governance in disciplining management has been the topic of an active debate among regulators, corporate governance reformists and academics. Cadbury (1997) suggests strong governance occurs if there is balancing of firm performance with an appropriate level of

³ Previous studies use the term 'Big-5', 'Big-6' or 'Big-8' to indicate the large international accounting firms. Those firms now have merged into four. Therefore, the term 'Big-4' is used in this study to refer to the top tier, large international accounting firms.

monitoring. The monitoring mechanisms examined in this study are the size of the board of directors (Sanchez-Ballesta and Garcia-Meca 2005; Firth et al. 2007), independent board of directors (Davidson, Goodwin-Stewart, and Kent 2005; Firth *et al.* 2007), and an effective independent audit committee (Menon and Williams 1994; Davidson *et al.* 2005).

2.2.1 *Size of the board of directors and qualified opinion*

Nam and Nam (2004) argue that board size is an important determinant of board effectiveness. Many empirical studies have tried to find the optimal size of a company's board of director. Huther (1997) suggests that just like any other decision making bodies, governing boards face coordination problems. These problems increase as the size of governing body increase. Lipton and Lorsch (1992) argue that the maximum size of the board of directors is 10. They (Lipton and Lorsch, 1992) further argue that board size of less than 10 is optimal as a smaller board works better and could be less manipulated by the delegated director. Jensen (1993) suggests that board sizes in the U.S. tend to be too large and recommends that boards have no more than eight directors.

More recently, there have been some studies that model theoretical determinants of board structure including board size. Lehn, Patro and Zhao (2004) find that board size is positively related to firm size and growth opportunities. Boone, Field, Karpoff and Raheja (2007) find that board size increases as companies grow and diversify over time. They (Boone *et al.* 2007) also argue that board size reflects a trade-off between the firm-specific benefit and cost of monitoring. Linck, Netter and Yang (2008) report that board structure across companies is consistent with the cost and benefits of the board monitoring and advising roles. They (Linck *et al.* 2008) provide evidence that board size fell in the 1990s for large firms and board size was relatively flat for small and medium-sized companies. In addition, the trend of board size for larger companies was reversed by the implementation of the Sarbanes-Oxley Act of 2002. In an audit opinion study, Firth *et al.* (2007) expect firms that have a large board to receive more frequently a qualified audit opinion. Firth *et al.* (2007), however, find the opposite; while. Sanchez-Ballesta and Garcia-Meca (2005), fail to detect any relationship between the two variables. Based on above discussion our fourth hypothesis is:

H₄: The size of the board of directors influences the probability of receiving an audit qualification opinion.

2.2.2 Independent board of directors and qualified opinion

Beasley (1996) and Dechow, Sloan and Sweeney (1996) suggest that the ability of the board to act as an effective monitoring mechanism depends on the independence from management. The boards are considered to be independent if there is no relationship with the company beyond the role of director. Lipton and Lorsch (1992) define an independent director as a director who has no connection with the company, either as management, customer or supplier of goods or services. Thus, the independent board member refers to a non-executive director who is not employed by the company and entirely independent from management. Such non-executive directors are more likely to have incentives to guard shareholder interests because of an invested reputational capital in a firm (Fama and Jensen 1983; Vafeas and Theodorou 1998).

Empirical findings regarding an association between board independence and corporate performance are inconclusive. Some studies suggest the presence of the non-executive boards improves company value. Beasley (1996) finds that the existence of independent directors is associated with less financial statement fraud. Using a sample of 692 U.S. firms, Klein (2002) reports a negative relation between board independence and a firm's earnings quality (measured by the magnitude of earnings management). Peasnell, Pope and Young (2000) provide evidence supporting Klein's findings in the U.K. context. In addition, Dechow *et al.* (1996) reveal that the greater proportion of independent directors, the less likely the firm is subjected to Securities and Exchange Commission (SEC) enforcement actions because of violating U.S. GAAP. Conversely, Agrawal and Knoeber (1996) indicate that the representation of a higher proportion of independent directors on boards is associated with poor performance, while Hermalin and Weisbach (1991) document no association between the percentage of non-executive directors serving on the board and firm value for a sample of 142 U.S. firms. Again using a U.S. dataset, a Chtourou, Bedard and Courteau (2001) find no relation between the presence of the independent directors and the level of earnings management. Finally, Firth *et al.* (2007) and Sanchez-Ballesta and Garcia-Meca (2005) find that the proportion of board independence affects the

informativeness of earnings, implying that the firm is less likely to receive a modified audit opinion. Therefore, we test the following hypothesis:

H₅: The proportion of independent directors on the board influences the probability of receiving an audit qualification opinion.

2.2.3 Independent audit committee and qualified opinion

The majority of previous studies concerning the relationship between board of directors' composition and firm value have concentrated on the role of the board at large; however, a great deal of board's decision-making occurs at the committee level (Ellstrand, Daily, and Johnson 1999). To oversee the accounting and financial reporting processes of a company as well as the audit of its financial statements, boards of directors delegate their responsibility to an audit committee (Baxter and Gardenne 2008). Thus, it is expected that this committee provides shareholders with the greatest protection in maintaining the credibility of a company's financial statements (Bradbury 1990). In performing its primary function, the audit committee meets regularly with both the company's external and internal auditors for reviewing the firm's financial statement, audit process, and internal accounting controls (Klein 1998, 2002). A study of 142 U.K. firms conducted by Collier (1993) suggests that firms establish audit committees to alleviate agency problems and to reduce information asymmetry between insiders and outsiders.

Prior literature indicates that the effectiveness of an audit committee is dependent on the committee's objectivity (or independence), diligence (or activity as defined by meeting frequency) and size (Bedard, Chtourou, and Courteau 2004; Davidson *et al.* 2005). It is arguably impossible for the audit committee to function effectively if members are also executives of the firm (Lynn 1996). Thus, an audit committee should comprise only non-executive or independent directors (Lipton and Lorsch 1992; Menon and Williams 1994). This argument is supported by Jambalvo (1996) who finds that audit committee independence is associated with a higher degree of active oversight and a lower incidence of financial statement fraud. Davidson *et al.* (2005) provide empirical evidence that the existence of an independent audit committee is significantly associated with a lower level of earnings management. However, Klein (2002) fails to find evidence that having a majority of non-executive directors on the audit committee reduces

levels of earnings management. She also finds no relationship between earnings management and audit committee consisting exclusively of independent directors. Additionally, Carcello and Neal (2000), who investigate the association between the composition of financially distressed companies' audit committees and the propensity of receiving going-concern audit reports, find that the greater the proportion of members of the audit committee who are independent directors, the higher the probability that the auditor will issue a going-concern qualified report.

Following previous research, our sixth hypothesis is:

H₆: The proportion of members of the audit committee who are independent directors influences the probability of receiving an audit qualification opinion.

3. Research Design

3.1. Sample selection

To ensure data homogeneity, this study only focuses on manufacturing Australian incorporated entities. Due to pragmatic constraints we randomly selected 200 Australian manufacturing firms listed on the ASX as at the end of June 2004. This study focuses on Australian incorporated entities; 10 firms incorporated overseas were excluded from the sample. In addition, eight IPO firms during the investigation calendar year were excluded from the sample as Caramanis and Spathis (2006) report that the first year of a firm's listing may affect the likelihood of receiving a qualified audit opinion. Of the remaining 182 manufacturing firms we were unable to collect sufficient information to calculate proxy measures for 58 entities. Accordingly, the statistical analysis is based on a final sample of 124 companies. Table 1 summarises a sub-manufacturing industry breakdown of the final usable sample that is employed in the statistical analysis.

Table 1: Sample used in analysis and sub-manufacturing industry breakdown

Industry type ^v	N	Audit opinion	
		Unqualified	Qualified
Materials	34	22	12
Capital Goods	18	13	5
Health Care Equipment	12	11	1
Pharmaceuticals & Biotechnology	20	18	2
Real Estate	19	19	0
Food, Beverage and Tobacco	7	5	2
Technology Hardware & Equipment	14	10	4
Total:	124	98	26

Legend: ^v – Manufacturing sub-industry sectors are defined in accordance with the ASX classification schema.

3.2. Empirical model and variables

The following cross-sectional logistic regression model is used to test the hypotheses:

$$Opinion_i = \alpha + \beta_1 Big4 + \beta_2 Earnings + \beta_3 AudInd + \beta_4 BoardSize + \beta_5 IndBoard + \beta_6 IndAudCom + \beta_7 ClientSize + \beta_8 Leverage + \beta_9 ROI + \varepsilon_i$$

Where:

- i = firm 1 through 124;
- α = constant term;
- $Opinion$ = 1 for firm that received a qualified audit opinion, and 0 otherwise;
- $Big\ 4$ = 1 for firm that audited by Big 4 auditors and 0 otherwise;
- $Earnings^4$ = absolute value of discretionary accruals, as measured by the cross-sectional modified-Jones model;
- $AudInd$ = ratio of non-audit fees to total fees paid by firms to the external auditor;
- $BoardSize$ = the total number of board of director members;
- $IndBoard$ = the proportion of the independent directors on the board;
- $IndAudCom$ = the proportion of members of the audit committee who are independent directors;
- $ClientSize$ = log of total assets;
- $Leverage$ = total debt divided by total assets;
- ROI = net income divided by total assets; and
- ε_i = the error term.

4. Results

4.1. Univariate tests

Table 2 Panel A presents the independent sample t-test results for the continuous variables in the regression model, while Panel B reports the results of chi-square tests for the dummy regression variable.

⁴ This study uses discretionary accruals as a proxy for earnings management. Prior to estimating discretionary accruals, total accruals (TAC) are calculated as: $TAC_{jt} = (\Delta CA_{jt} - \Delta Cash_{jt}) - (\Delta CL_{jt} - \Delta LTD_{jt} - \Delta ITP_{jt}) - DPA_{jt}$ {1} Where: TAC_{jt} = total accruals for firm j in period t ; ΔCA_{jt} = change current assets for firm j from $t-1$ to t ; $\Delta Cash_{jt}$ = change cash balance for firm j from $t-1$ to t ; ΔCL_{jt} = change current liabilities for firm j from $t-1$ to t ; ΔLTD_{jt} = change long-term debt included in current liabilities for firm j from $t-1$ to t ; ΔITP_{jt} = change income tax payable for firm j from $t-1$ to t ; and DPA_{jt} = depreciation & amortisation expense for firm j for period t . TAC then is decomposed into normal accruals (NAC) and discretionary accruals (DAC) using the cross-sectional modified Jones (1991) model defined as: $TAC_{jk,t} / TA_{jk,t-1} = \alpha_{jt} [1 / TA_{jk,t-1}] + \beta_{jt} [(\Delta REV_{jk,t} - \Delta REC_{jk,t}) / TA_{jk,t-1}] + \gamma_{j,t} [PPE_{jk,t} / TA_{jk,t-1}] + \varepsilon_{jk,t}$ {2} Where: $TAC_{jk,t}$ = total accruals for firm j in industry k in year t ; $TA_{jk,t-1}$ = are total assets for firm j in industry k at the end of year $t-1$; $\Delta REV_{jk,t}$ = change net sales for firm j in industry k between years $t-1$ and t ; $\Delta REC_{jk,t}$ = change in receivables for firm j in industry k between $t-1$ and t ; $PPE_{jk,t}$ = gross property, plant and equipment for firm j in industry k in the year t ; α_j , β_j , γ_j = industry specific estimated coefficients; and ε_j = error term. NAC is defined as the fitted values from Equation 2 whilst DAC is the residual (TAC - NAC).

Table 2: Univariate models for audit opinion on independent and controls variables

Panel A: Descriptive statistics for continuous variables of interest						
Continuous variables	Unqualified		Qualified		t-test	Sig.
	Mean	Std	Mean	Std		
<i>Earnings</i>	57.05	71.31	82.84	91.51	-1.334	0.191
<i>AudInd</i>	28.78	23.06	16.57	15.30	3.199	0.002
<i>BoardSize</i>	5.51	1.68	3.96	1.28	5.109	0.000
<i>IndBoard</i>	52.86	22.05	48.46	30.76	0.684	0.499
<i>IndAudCom</i>	69.46	31.84	43.33	45.61	2.748	0.010
<i>ClientSize</i>	492,401	1,003,282	48,144	163,585	4.179	0.000
<i>Leverage</i>	37.43	25.02	57.50	62.87	-2.515	0.013
<i>ROI</i>	-4.41	24.41	-42.91	55.30	3.464	0.002
Panel B: Chi-square test statistics for categorical variables of interest						
Categorical variable	Unqualified No.		Qualified No.		X ²	Sig.
<i>Non-Big 4</i>	21		13		8.429	0.006
<i>Big 4</i>	77		13			

Legend: See page 13 for full definitions and descriptions for the dependent, independent and control variables.

The univariate tests performed suggest several variables may be helpful in explaining audit qualifications. The large differences in average values of *AudInd*, *BoardSize*, and *IndAudCom* between firms with unqualified and qualified reports and the high statistical significance ($p < 0.01$) indicate that these three independent variables may indeed relate to audit opinion decisions. Conversely, the average values of *Earnings* and *IndBoard* do not show significant differences between the two groups of audit opinions. In regard to control variables, the qualified groups have a substantially lower mean for total assets (*ClientSize*), but higher mean values of *Leverage* and *ROI*. The mean differences in these control variables between the two audit opinion groups are statistically highly significant at $p < 0.01$. Panel B reports that 13 of 34 (38%) firms audited by non-Big 4 auditors receive a qualified audit opinion, while the probability of Big 4 auditors to qualify their audit reports is only 14% (13 of 90 firms) at $X^2 = 8.429$ and $p < 0.01$. The X^2 statistics indicates that there is an association between the type of the audit firms (Big 4 and non-Big 4) and the qualification of the audit opinion.

Table 3 provides a correlation matrix between the dependent, independent and control variables. The upper half reports Pearson pairwise correlation coefficients (cr_p), while the lower half reports Spearman correlation coefficients (cr_s). There are negative correlations between all independent variables, except for *Earnings*, and the frequency of receiving a qualified audit

report. However, only *Big 4*, *AudInd*, *BoardSize*, *IndAudCom* are statistically significant in both the Pearson and Spearman correlation matrix.

Findings also show a significant correlation (both c_{rp} and c_{rs}) amongst independent variables. The highest correlation is between *IndAudCom* and *IndBoard*, with a coefficient of 0.596 ($p < 0.001$ c_{rs}). As the correlation value is below the critical limits of 0.80 (Hair, Anderson, Tatham, and Black 1995; Greene 1999) it is suggested that a multicollinearity problem between independent variables is not a serious concern.

In respect to correlations between independent and control variables, and amongst control variables themselves, the highest correlations are between *BoardSize* and *ClientSize*, with a coefficient of 0.578 ($p < 0.01$ c_{rp}). Again, this value is below the critical limit of 0.80. Variance inflation factors were calculated for all regressions reported in Table 4 for all independent and control variables provide further indications that multicollinearity is not a problem in the model estimations (Hair *et al.* 1995; Greene 1999; Cooper and Schindler 2003).

Table 3: Pearson and Spearman correlation matrix

	<i>Opinion</i>	<i>Big 4</i>	<i>Earnings</i>	<i>AudInd</i>	<i>BoardSize</i>	<i>IndBoard</i>	<i>IndAudCom</i>	<i>ClientSize</i>	<i>Leverage</i>	<i>ROI</i>
<i>Opinion</i>		-0.261*	0.138	-0.224**	-0.368*	-0.075	-0.292*	-0.396	0.222**	0.416*
<i>Big 4</i>	-0.261*		-0.045	0.095	0.267*	0.135	0.289*	0.376*	-0.006	-0.099
<i>Earnings</i>	0.114	-0.023		0.024	-0.219**	-0.025	-0.113	-0.207**	0.310*	0.113
<i>AudInd</i>	-0.220**	0.107	0.038		0.154	-0.082	0.107	0.173	-0.033	-0.040
<i>BoardSize</i>	-0.445*	0.277*	-0.220**	0.204**		0.138	0.336*	0.578*	-0.139	-0.228**
<i>IndBoard</i>	-0.066	0.153	-0.053	0.027	0.189**		0.571*	0.119	0.165	-0.092
<i>IndAudCom</i>	-0.234*	0.287*	0.088	0.042	0.331*	0.596*		0.335*	0.057	-0.238*
<i>ClientSize</i>	-0.430*	0.384*	-0.165	0.212**	0.568*	0.116	0.265*		0.160	-0.561*
<i>Leverage</i>	0.064	0.116	0.116	0.044	0.378*	0.026	0.082	0.116		-0.356*
<i>ROI</i>	0.386*	-0.115	0.182**	-0.068	-0.343*	-0.080	-0.185**	-0.583*	-0.395*	

Legend: * and ** indicate significance at $p < 0.01$ and $p < 0.05$ (based on two-tailed tests). See page 13 for full definitions and descriptions for the dependent, independent and control variables.

4.2. Multivariate analysis

The results of multivariate logistic regression for testing the hypotheses are reported in Table 4.

Table 4: Results of the multivariate logistic regression

<i>Equation: $Opinion_i = \alpha + \beta_1 Big4 + \beta_2 Earnings + \beta_3 AudInd + \beta_4 BoardSize + \beta_5 IndBoard + \beta_6 IndAudCom + \beta_7 ClientSize + \beta_8 Leverage + \beta_9 ROI + \varepsilon_i$</i>				
	Estimated coefficients	Standard errors	Wald	Sig.
(Constant)	-11.008	6.668	2.725	0.099
Independent variables:				
<i>Big 4</i>	-1.201	0.690	3.031	0.082
<i>Earnings</i>	-0.813	0.558	2.123	0.145
<i>AudInd</i>	-3.491	1.891	3.406	0.065
<i>BoardSize</i>	-0.758	0.398	3.620	0.057
<i>IndBoard</i>	-0.519	1.454	0.127	0.721
<i>IndAudCom</i>	-0.108	1.035	0.011	0.719
Control variables:				
<i>ClientSize</i>	0.078	0.263	0.088	0.766
<i>Leverage</i>	3.500	1.148	9.292	0.002
<i>ROI</i>	31.199	9.091	11.778	0.001
Model Summary				
Model Chi-square	60.393			
p-value	0.000			
Classification accuracy	91.31			
Pseudo R ² Cox & Snell	0.386			
Nagelkerke R-Square	0.601			
Sample Size	124			

Legend: See page 13 for full definitions and descriptions for the dependent, independent and control variables.

The overall percent of correct classification is 91.31%. The relationship between dependent and independent variables is significant ($X^2 = 60.393$, $p < 0.000$). The pseudo $X^2 = 38.6\%$ implies a relatively strong relationship between the dependent and independent variables. The results report that only *Big 4*, *AudInd*, and *BoardSize* predictors are statistically significant at a moderately level $p < 0.10$. The *Big 4* coefficient is negative, supporting the argument that firms audited by non-Big 4 auditors are more likely to receive an audit qualification. Our data reveals that compared with clients of Big 4 audit firms, the clients of non-Big 4 auditors were of a poorer financial health as evidenced by lower (more negative) cash flows from operation, lower (more loss) profit, and smaller in size (measured by total assets). This financial condition might influence the clients' incentive for earnings management and the likelihood of a client's

bankruptcy (Reed, Trombley, and Dhaliwal 2000), hence, the higher probability for a qualified audit opinion (Spathis, Doumpos, and Zopounidis 2003). Another possible explanation is that the non-Big 4 audit market has dramatically increased, especially after the launching of the Sarbanes-Oxley Act of 2002 (and the similar *CLERP 9* in Australia), as a substantial number of audit clients of Big 4 auditors are switching to non-Big 4 audit firms (Hunt and Lulseged 2007).⁵ This phenomenon results in a larger non-Big 4 audit market; thus lower economic dependence leads to enhanced independence of the non-Big 4 auditors. Moreover, this fact is in line with Reynolds and Francis (2001) who suggest that non-Big 4 audit firms seem to treat larger clients more strictly by not allowing these larger clients more freedom to manage reported earnings.

The negative coefficient for *Earnings*⁶ implies that auditors will issue a qualified audit report for low accrual firms; however, this relationship is statistically not significant. Thus, H_2 is not supported. This result is contrary to several previous studies that suggest high accrual firms are identical with lower quality of financial reports resulting in the higher possibility of receiving a qualified opinion. Francis and Krishnan (1999) confirmed that high accrual firms in the U.S. have a higher propensity to receive qualified audit reports for asset realization uncertainties and going concern problems. Using a sample of 1,341 observations from the Chinese stock market, a significant and positive relationship is found between the presence of an audit qualification and the magnitude of earnings management (Chen *et al.* 2001). Bartov *et al.* (2000), however, fail to find any relationship between the two observed variables (i.e., audit opinion and accruals).

The negative estimated coefficient for *AudInd* is significant at $p < 0.10$ and in the expected direction. This provides evidence that is consistent with H_3 , that the higher the proportion of non-audit fees that auditors receive from their audit clients, the lower the probability that they will qualify their audit reports. This could convey the view that the independence of the audit firms of the observed companies may have been impaired. This finding is contrary with previous studies

⁵ The clients of the Big-4 audit firms in the Australian capital market have decreased over periods. In the years 1990-1998, Ferguson & Stokes (2002) document that around 65.00% of the sample firms were audited by one of the Big-5 audit firms, while, Caitlin & Taylor (2005) report that in the periods from 1993 to 2000 the Big-6 accounting firms audit, on average, 61.13% of the Australian listed firms. Using a sample of 325 Australian listed companies for the fiscal year 2004, Rusmin, Van der Zhan, Tower and Brown (2006) show that the Big-4 firms audit 57.54% of listed companies in Australia.

⁶ However, the correlation matrix (see Table 3) shows there is a positive association between earnings management and audit qualification measures.

that document a positive association between the presence of a qualified audit opinion and substantially higher non-audit fee ratio (Wines 1994; Houghton and Jubb 1999; DeFond et al. 2002).

A negative and significant ($p < 0.10$) association between *BoardSize* and *Opinion* implies that the larger the number of members on the boards, the more likely the Board is to function effectively, leading to higher quality of financial reporting and consequently, more likelihood of receiving a clean audit opinion. This finding supports Firth *et al.* (2007) who report that the larger the boards the greater the probability of receiving unqualified audit reports. However, our result is contrary with several past studies. Sanchez-Ballesta and Garcia-Mega (2005) argue that larger boards will not perform monitoring function effectively because of communication, coordination and monitoring problems. Similar to Sanchez-Ballesta and Garcia-Mega (2005), Jensen (1993) also posits that large boards are less effective than small boards. Therefore, he (Jensen, 1993) suggests that to be effective the size of the board be less than eight. This argument is also supported by empirical evidence documented by Yermack (1996) and Vafeas (2005).

The coefficients for *IndBoard* and *IndAudCom* are negative but statistically not significant. Thus, H_5 and H_6 are not supported. In regard to control variables, this study provides evidence that *Leverage* and *ROI* are important variables in explaining the auditors' propensity to qualify their opinions. Specially, we find a positive and highly significant (at $p < 0.01$) association between both *Leverage* and *ROI* and the possibility of receiving qualified audit reports.

4.3 Additional sensitivity and robustness checks

To ensure the inferences drawn are valid, we perform additional sensitivity and robustness checks by using different alternative measures for earnings management and auditor independence variables. Our main analysis focuses on absolute discretionary accruals as a proxy for earnings management. This measure is non-directional, capturing both upwards and downwards earnings management. Thus, we re-run our previous test using signed discretionary accruals (Davidson *et al.* 2005). We also analyse the main model using total accruals as another measure for earnings management (Payne 2001; Hunt and Lulseged 2007). The use of alternative

discretionary accrual measurements does not yield substantively different results to those reported in Table 4.

Furthermore, as noted above, the ratio of non-audit service fee to total fees is extensively utilised in the research literature to proxy for auditor independence impairment (e.g., Parkash and Venable 1993; Firth 1997; Frankel et al. 2002). Application of this proxy is consistent with results of the Earncliffe Research and Communications (1999) survey that finds there is a perception that auditor independence is impaired when the amount of non-audit fees is large relative to audit fees. The non-audit to total fee ratio, however, is not free of criticism such as failing to capture client importance. Following Frankel *et al.*, (2002) we construct alternative measures of auditor independence including: (a) ratio of audit fees to total fees; and (b) ratio of non-audit fees to audit fees. Tests performed using these alternative proxies for auditor independence generally yield consistent results with those reported in Table 4.

5. Conclusion

Despite the prominent attention currently given to the role of audit quality and corporate governance, little research has been conducted investigating its relation to the audit opinion. This study presents empirical evidence on the relation between both audit quality and monitoring function effectiveness and qualified audit opinion. The sample is drawn from the manufacturing public companies listed on the ASX for the financial year 2004.

We use univariate and multivariate logistic regression analysis to identify the factors associated with qualified audit reports. Six variables (Big 4 auditors, discretionary accruals, non-audit fee ratio, board size, independent board and independent audit committee) are selected for examination as potential predictors of qualified audit reports. Three of the six variables, Big 4 auditors, auditor independence and board size, are significant in the Australian audit environment. That is, Big 4 auditors are more likely to issue a clean audit report. This result is contrary with the widely accepted conjecture that Big 4 auditors provide a high quality audit. On the other hand, our finding indicates that firms audited by non-Big 4 auditors more frequently receive a qualified audit report, implying that non-Big 4 audit firms improve their quality of audit. This result is similar to Reynolds and Francis (2001) suggesting that non-Big 4 auditors

seem stricter with their clients, especially in relation to their larger clients. Consistent with expectations, our study suggests that auditors are less likely to qualify a firm's financial statements when higher levels of non-audit fees are derived. This findings is contrary to Hunt and Lulseged (2007) and Ashbaugh *et al.* (2003) but consistent with Frankel *et al.* (2002). Higher proportion of non-audit fees threatens the auditor's independence and, hence, the auditor's willingness to qualify audit reports.

Finally, this study adds to the growing body of literature that documents the importance of a board's role in monitoring management behaviour. Our results indicate that boards of directors play an effective monitoring role that leads to higher quality of financial reporting and, therefore, less likelihood of receiving a qualified audit report. Specifically, we find smaller size boards appear to be less effective than larger size boards. This result is contrary to previous studies (e.g., Jensen, 1993; Yermack, 1996; Vafeas, 2005). However, our result is consistent with Firth *et al.* (2007). Overall, this research contributes important insights that the roles of audit quality, monitoring mechanisms and auditor reporting behaviour, even in a strengthened Australian regulatory system, remain complex and influenced by their business environment.

A major limitation in this study is the possible misspecification of the model estimated. Earnings management and auditor independence are unobservable so we rely on proxy measures that, whilst previously used in the research literature, are not free of criticism. For example, discretionary accrual models measure discretionary accruals with error (see Bernard and Skinner 1996 for a deeper discussion). These problems, however, are endemic to the earnings management literature and we are using the best currently available models and proxies. Future studies can seek to focus on refinements to the proxy measures for dependent and independent variables. For example, several studies of corporate governance (e.g., Lam and Lee 2008; Garcia-Meca and Sanchez-Ballesta 2009) also consider the duality of roles of CEO and chairman. In addition, this study examines only one fiscal year with a specific industry classification and a relatively small sample size. With improved methodology, i.e., new statistical techniques and a greater number of sample companies, it should be possible to develop a more powerful analytical tool which could pave the way for the development of greater insights.

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